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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,928	04/26/2001	Philippa Marrack	2879-76	2069

22442 7590 06/17/2005

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EXAMINER

EWOLDT, GERALD R

ART UNIT	PAPER NUMBER
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1644

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,928

Applicant(s)

MARRACK ET AL.

Examiner

G. R. Ewoldt, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2005 and 08 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 19-21, 23-33, 52 and 53 is/are pending in the application.
- 4a) Of the above claim(s) 4-8, 10-13, 19-21, 23-33 and 53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9, 14, 15 and 52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date, _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed 4/08/05 in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's amendment and remarks, filed 1/24/05, have been entered.

2. Claims 1-15, 19-21, 23-33, 52, and 53 are pending.

3. Claims 4-8, 10-13, 19-21, 23-33, and 53 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected inventions/species.

Claims 1-3, 9, and 14-15, and 52 read on the elected invention and are being acted upon.

4. In view of Applicant's amendment, the previous rejection under the first paragraph of 35 U.S.C. 112 has been withdrawn. Upon reconsideration, the previous rejection under 35 U.S.C. 103(a) has been withdrawn.

5. The following are new grounds for rejection.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 9, 14-15, and newly added Claim 52, stand/are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (1998, IDS) in view of Lenardo (1991, IDS) and Refaeli et al. (1998, IDS).

Zhang et al. teaches that IL-15 causes the "strong and selective" stimulation of memory T cells *in vivo* (see particularly the Summary).

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The reference teaching differs from the claimed invention only in that it does not teach the use of IL-15 in an adjuvant formulation nor the inclusion of an IL-2 antibody in said formulation.

Lenardo teaches that IL-2 is required for the programmed cell death of mature (antigen activated) T cells (see particularly the Abstract). The reference further teaches that cells that escape IL-2 induced apoptosis may become memory cells (page 861).

Refaeli et al. expands on the teachings of Lenardo. The reference confirms that activation-induced cell death (AICD) of T lymphocytes is IL-2 mediated. The reference teaches that IL-2 deficient, or IL-2 receptor deficient, mice are resistant to AICD and develop lymphoproliferative disorders (page 615). The reference teaches that recently activated T cells activated in the presence of IL-2 show increased sensitivity to AICD due to increased expression of Fas ligand (FasL) and the inhibition of the AICD inhibitor FLIP (page 619). The reference concludes that IL-2 is involved in T cell homeostasis, i.e., the cytokine has both growth-promoting and apoptotic properties. Critically though, the growth properties can be replaced by other cytokines but the apoptotic properties cannot (page 620).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to produce a vaccine adjuvant comprising IL-15 and an anti-IL-2 antibody, given the combined teachings of Zhang et al., Lenardo, and Refaeli et al. One of ordinary skill in the art at the time of the invention would have been motivated to combine IL-15, to stimulate memory T cell production, as taught by Zhang et al., and anti-IL-2 antibody, to remove IL-2 and reduce T cell AICD, as taught by Lenardo, and Refaeli et al., allowing for the maximal production of memory T cells, thus, producing a vaccine adjuvant for the induction of a superior memory immune response.

Applicant's arguments, filed 1/24/05, in response to a previous similar rejection, have been fully considered but they are not persuasive. Applicant argues that Zhang et al. teaches away from the inhibition of IL-2.

The reference teaches that at most, IL-2 has a minimal effect on the production of memory T cells; in most cases IL-2's

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effect is insignificant, accordingly, it is the Examiner's position that the reference is essentially neutral on the inhibition of IL-2 in memory T cell production.

Applicant argues that Lenardo also teaches away from the inhibition of IL-2. Applicant argues that the reference evaluates only administration of antigen and IL-2. Further, Applicant argues that inhibition of IL-2 had no effect on the stimulation of T cells in the absence of antigen.

It is unclear how Applicant's argument regarding the presence or absence of antigen is relevant as the claims comprise no limitation regarding the exclusion of antigens with the claimed adjuvant. It remains the Examiner's position that Lenardo teaches what it teaches, that T cells that escape AICD become memory T cells. Applicant's dismissal of this teaching is not found to be persuasive.

Applicant has argued a lack of motivation to combine the references.

Additional motivation in the form of Refaeli et al. has been provided.

8. No claim is allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Gerald Ewoldt whose telephone number is (571) 272-0843. The examiner can normally be reached Monday through Thursday from 7:30 am to 5:30 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841.

10. **Please Note:** Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


6/14/08

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Primary Examiner
Technology Center 1600